UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,363	09/08/2003	Takeshi Hattori	Q77249	8238

7590 10/07/2005

SUGHRU MINO, PLLC
2100 Pennsylvania Avenue, NW
Washington, DC 20037-3213

EXAMINER	
VIJAYAKUMAR, KALLAMBELLA M	
ART UNIT	**PAPER NUMBER**
1751	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/656,363	HATTORI ET AL.	
	Examiner	Art Unit	
	Kallambella Vijayakumar	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,12 and 13* is/are rejected.

7)☒ Claim(s) *9-11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The information disclosure statement (IDS) submitted on 02/17/2004 has been considered by the examiner.

Claims 1-13 are currently pending with the application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-4, 6 rejected under 35 U.S.C. 102(b) as being anticipated by Fujiwara et al (JP 2000-281337).

The prior art teaches a method of making ITO with improved chromaticity by mixing INCl3 and SnCl2 and coprecipitating the mixed hydroxides by adding an alkali and calcining the hydroxides between 600-1300C in an atmosphere/feed-stream containing more than 1% by volume of hydrogen halide (Para 0006-0009, 0013, Claim-

1). 100% divalent Sn in the raw solution further meets the ratio limitation of more than 50% divalent tin in claim-1. The prior art further teaches mixing the In and Sn salt solutions, alkali solution and water at a temperature of 40-100C and at pH of 4-7 (Claim-3). Further the raw material solution was prepared by dissolving In and Sn metals in hydrochloric acid and this process is identical to that by the applicants (See Specification, Example-1): All the limitations of the instant claims are met.

The reference is anticipatory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al (JP 2000-281337) in view of Yukinobu et al (US 5,580,496).

The method of making ITO by Fujiwara et al in rejection-1 under 35 USC 102(b) is herein incorporated.

The prior art fails to teach the raw aqueous solution made by dissolving a substance containing In, Sn and O in an acid per claims 5 and 7-8.

In the analogous art, Yukinobu et al teach forming ITO using an In- source containing a solution obtained by dissolving indium hydroxide in an acid, and the Sn source containing tin halides or stannous hydroxide.

It would have been obvious to a person of ordinary skill in the art to combine the prior art teachings and optionally substitute the In and Sn salts with hydroxides of In and Sn as functional equivalents and dissolve them in common HCl forming raw aqueous solution with reasonable expectation of success, because the prior art teaching is suggestive of the claimed method steps.

2. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al (JP 2000-281337) in view of Fujiwara et al (US 6,051,166).

The method of making ITO by Fujiwara et al in rejection-1 under 35 USC 102(b) is herein incorporated.

The prior art fails to teach using of sodium/potassium hydroxide as alkali hydroxide per claim-13.

In the analogous art, Fujiwara et al (US-166) teaches the use of aqueous sodium hydroxide, ammonia or the like as the alkali hydroxide for co-precipitating In-Sn-hydroxides in the making of ITO.

It would have been obvious to a person of ordinary skill in the art to optionally substitute the alkali hydroxide with sodium hydroxide as functional equivalent with reasonable expectation of success because the combined prior art teaching is suggestive of the claimed process step.

Allowable Subject Matter

Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither teaches nor fairly suggest a reduction treatment to the In and tetravalent Sn solutions, or the excess amount of Sn-oxide or the treatment of the solution with an ion-exchange resin per the claims. The closest prior art

by Hashimoto et al (US 4,594,182) teaches forming pure ITO sol by passing In and Sn ion solutions in acids and solvents through the IE-resin (Col-3, Ln 10-67), but does not teach or suggest to use the process to make ITO powders.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 8-5.30 Mon-Thu, 8-4.30 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

October 01, 2005.

KMV

Mark Kopec
Primary Examiner